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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,816	02/25/2002	Andrew Cofler	00GR35154360	1555

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ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A.
1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE
P.O. BOX 3791
ORLANDO, FL 32802-3791

EXAMINER	
TSAI, HENRY	

ART UNIT	PAPER NUMBER
2183	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/082,816	COFLER ET AL.	
	Examiner	Art Unit	
	Henry W.H. Tsai	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☒ Claim(s) *15,16 and 19-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 May 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/22/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "MC3" (at page 23, line 24). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: at page 21, line 15, "RGC" should read -GRC-.

Appropriate correction is required.

Claim Objections

3. Claim 24 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim 24 has not been further treated on the merits.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point

out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the claim is a method, however, there is no step described in the claim, therefore, it is not clear what the real claimed invention is.

Applicant is required to review the claims and correct all language which does not comply with 35 U.S.C. § 112, second paragraph.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-3, and 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Emma et al. (U.S. Patent No. 5,353,421) (hereafter referred to as Emma et al.'421).

Referring to claims 1, and 12, Emma et al.'421 discloses, as claimed, method of handling branching instructions within a

processor (see Fig. 10), the processor including a program memory (10, see Fig. 10, and Col. 7, lines 3-5) containing program instructions, and a processor core (CR) containing several processing units (AU, DU) (certainly existing in the Emma et al.'421's system, such as integer unit, floating point unit, and addressing unit) and a central unit (CU) (certainly existing in the Emma et al.'421's system), in which the central unit, on receiving a program instruction, issues corresponding instructions to the various processing units (certainly existing in the Emma et al.'421's system, such as integer unit, floating point unit, and addressing unit), characterized in that, with the processor core (CR) being clocked by a clock signal (since a clock certainly exists in the Emma et al.'421's system), a branching instruction received by the central unit (CU) in the course of a current cycle is processed in the course of this current cycle (with broadest reasonable interpretation, the Emma et al.'421's CPU will process a branching instruction immediately without wait when the instruction is received, see pipeline stages in Fig. 1).

As to claims 2, and 13 Emma et al.'421 also discloses: a first processing unit (AU) contains at least one address-pointing register (Px) (inside BHT 82, see Fig. 9), in that a branching instruction uses the content of at least one of the

address-pointing registers, in that a check of the validity (validity bit V, see Figs. 9 and 11, see also Col. 13, lines 54-56) of the content of said pointing register in question is carried out at the start of said current cycle and in that said branching instruction is actually received by the central unit and processed if said content is declared valid (see also Col. 13, lines 54-56, and, in the opposite case, this branching instruction is kept on hold (since the target of the branch found in BHT will not be fetched, see Col. 13, lines 54-56) for processing until said content is declared valid.

As to claims 3 and 14, Emma et al.'421 also discloses: the content of each address-pointing register (Px) is recopied into a duplicated address-pointing register (PxC) (the register, not explicitly shown, connected with select logic and select gate see Fig. 11), and in that the check (by the select logic 105 see Fig. 11) on the validity of the content of the pointing register in question is a check on the validity of the content of the corresponding duplicated register.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emma et al.'421 in view of European Patent Application No. EP 1 050 805 (hereafter referred to as EP'805) or Applicant Admitted Prior Art mentioned in Specification page 4, last paragraph to page 5, lines 1-18 (hereafter referred to as AAPA).

Emma et al.'421 discloses the claimed invention except for a second processing unit (DU) contains a guard-indication register (GR), in that, in the presence of a guarded branching instruction, a check on the validity of the value of the guard indication assigned to said branching instruction and contained in the guard-indication register is carried out at the start of said current cycle, and in that said guarded branching

instruction is actually received by the central unit and processed, if the value of the corresponding guard indication is declared valid, and, in the opposite case, this guarded branching instruction is kept on hold for processing until the value of the corresponding guard indication is declared valid (in claim 6, and claim 17 recites the corresponding limitations).

EP'805 discloses a system comprising a second processing unit (DU) (19, see Fig. 1) contains a guard-indication register (GR) (100, see Fig. 1), in that, in the presence of a guarded branching instruction, a check on the validity of the value of the guard indication assigned to said branching instruction (see Col. 5, lines 54-55, regarding the guard selecting from G1-G15 selected for each instruction (certainly including branch instruction)) and contained in the guard-indication register (100, see Fig. 1) is carried out at the start of said current cycle, and in that said guarded branching instruction is actually received by the central unit (12, see Fig. 1) and processed, if the value of the corresponding guard indication (see Col. 2, lines 44-49 or Col. 5, lines 54-55, regarding the guard selecting from G1-G15 selected for each instruction (certainly including branch instruction)) is declared valid (see Col. 5, lines 56-58, regarding the value true or false

attributed to guards from G1-G15 is however dependent upon the guard values held at any particular time in a guard register file), and, in the opposite case, this guarded branching instruction is kept on hold for processing until the value of the corresponding guard indication is declared valid. Besides, as Applicant Admitted Prior Art mentioned in Specification page 4, last paragraph to page 5, lines 1-18, the use of guarded instruction in a processor is already known in to a person skilled in the art.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Emma et al.'421's system to comprise a second processing unit (DU) contains a guard-indication register (GR), in that, in the presence of a guarded branching instruction, a check on the validity of the value of the guard indication assigned to said branching instruction and contained in the guard-indication register is carried out at the start of said current cycle, and in that said guarded branching instruction is actually received by the central unit and processed, if the value of the corresponding guard indication is declared valid, and, in the opposite case, this guarded branching instruction is kept on hold for processing until the value of the corresponding guard indication is declared valid, as taught by EP'805 (or AAPA), in

order to facilitate efficiently controlling the branch instructions for the Emma et al.'421's device.

Regarding claims 7 and 18, as set forth in claim 3, Emma et al.'421 also discloses: the content of each address-pointing register (Px) is recopied into a duplicated address-pointing register (PxC) (the register, not explicitly shown, connected with select logic and select gate see Fig. 11), and in that the check (by the select logic 105 see Fig. 11) on the validity of the content of the pointing register in question is a check on the validity of the content of the corresponding duplicated register.

Allowable Subject Matter

10. Claims 4, 5, and 8-11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Claims 15, 16, and 19-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kahle et al.'002 discloses a recovery from hang condition in a microprocessor. The completion unit is adapted to produce a completion valid signal responsive to the issue unit completing an instruction. The hang detect unit is configured to receive the completion valid signal from the ISU and adapted to determine the interval since the most recent assertion of the completion valid signal. Matsuo et al.'587 discloses a data processor calculating branch target address of a branch instruction in parallel with decoding of the instruction. A branch target address calculation unit 1 which is connected to the instruction fetch unit 111 and the program counter (DPC) 29, adds a value of a branch displacement field transferred from the instruction fetch unit 111 and the instruction address transferred from the program counter (DPC) 29

Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Henry Tsai whose telephone number is (703) 308-7600. The examiner can

normally be reached on Monday-Thursday from 8:00 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner supervisor, Eddie Chan, can be reached on (703) 305-9712. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the **TC 2100 receptionist whose telephone number is (703) 305-3900.**

14. In order to reduce pendency and avoid potential delays, Group 2100 is encouraging FAXing of responses to Office actions directly into **the Group at fax number:** 703-872-9306.

This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 2100 will be promptly forward to the examiner.

HENRY W. H. TSAI
PRIMARY EXAMINER

September 13, 2004